Cavities in the current dataset

Fermilab

- **27.Oct.2009 Excel spreadsheet contains data from all three regions, from the last few years**
  - **KEK [5 cavities]: [MHI005:MHI009]**
  - **JLab, Cornell, Fermilab [18 cavities]: [A5: A9], [TB9ACC010:TB9ACC015], [AES001:AES004], [TB9AES005:TB9AES006], JLAB-2**
  - **DESY [53 cavities]: [AC112:AC129], [Z130:Z145], [AC146:150]**

    (Production batches 5, 6, &7 are represented) and [Z88,Z93,Z97,Z98,Z100:Z104,Z106:Z110] (Production 4)

- **11.Dec.2009 update**
  - **Updates from all three regions**
  - **Americas [+3 cavities]: TB9AES008,TB9AES009,TB9AES010**

"Qualified-Vendor" Production Yield Plot - Method

Fermilab

- Database version 11.Dec.2009
- Cuts
  - Cavity from qualified vendor= ACCEL or ZANON or (AES SN>=5)
  - Fine-grain cavity
  - Use the first successful (= no system problem/limitation) test
  - Standard EP processing: no BCP, no experimental processes
    - Defined as JLab#1, DESY#2 (weld tank before test), DESY #4 (weld tank after test)
    - Ethanol rinse and 120C bake required for DESY cavities
  - (Ignore test limitation)
- Also known as "first-pass"
- Include binomial errors

Difference of AAP plot wrt ADI

Fermilab

ADI 2.Dec.2009

Plot 1c: 1st successful

cavity name	gradient	
ACCEL6	19	>15
ACCEL7	29	>25
TB9ACC011	37	>35
TB9ACC012	35.1	>35
TB9ACC013	41.8	>40
TB9ACC014	26	>25
TB9ACC015	18	>15
Z88	32.14	>30
Z93	22.46	>20
Z97	26.17	>25
Z101	29.2	>25
Z102	26.75	>25
Z104	37.84	>35
Z106	30.05	>30
Z108	22.85	>20
Z110	13.78	>10
AC115	38.6	>35
AC122	38.88	>35
AC124	26.01	>25
AC125	34.59	>30
AC126	16.37	>15
AC127	31.25	>30
Z130	17.3	>15
Z131	17.17	>15
Z132	16.83	>15
Z137	25.23	>25
Z139	24.93	>20
Z141	18.29	>15
Z143	32.57	>30
AC149	26.51	>25
AC150	34.33	>30
#cavities	**31**	

Plot 1d-prime: 1st successful

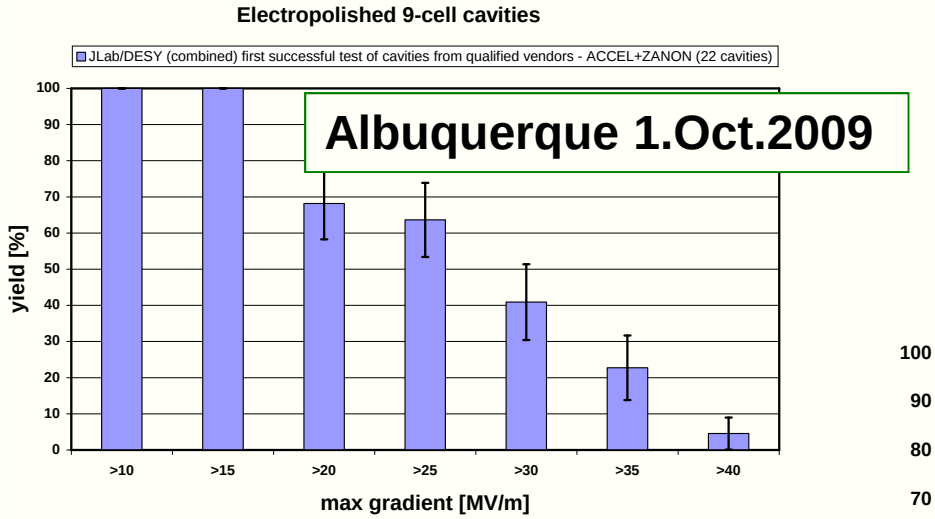
cavity name	gradient	
ACCEL6	19	>15
ACCEL7	29	>25
TB9ACC011	37	>35
TB9ACC012	35.1	>35
TB9ACC013	41.8	>40
TB9ACC014	41.5	>40
TB9ACC015	18	>15
TB9ACC016	30.6	>30
TB9AES005	20.5	>20
TB9AES006	14.1	>10
TB9AES008	41.1	>40
TB9AES009	33.4	>30
TB9AES010	38	>35
AC115	38.6	>35
AC122	38.88	>35
AC124	26.01	>25
AC125	34.59	>30
AC126	16.37	>15
AC127	31.25	>30
Z130	17.3	>15
Z131	17.17	>15
Z132	16.83	>15
Z134	34.94	>30
Z137	25.23	>25
Z139	24.93	>20
Z141	18.29	>15
Z142	20.58	>20
Z143	32.57	>30
AC149	26.51	>25
AC150	34.33	>30
#cavities	**30**	

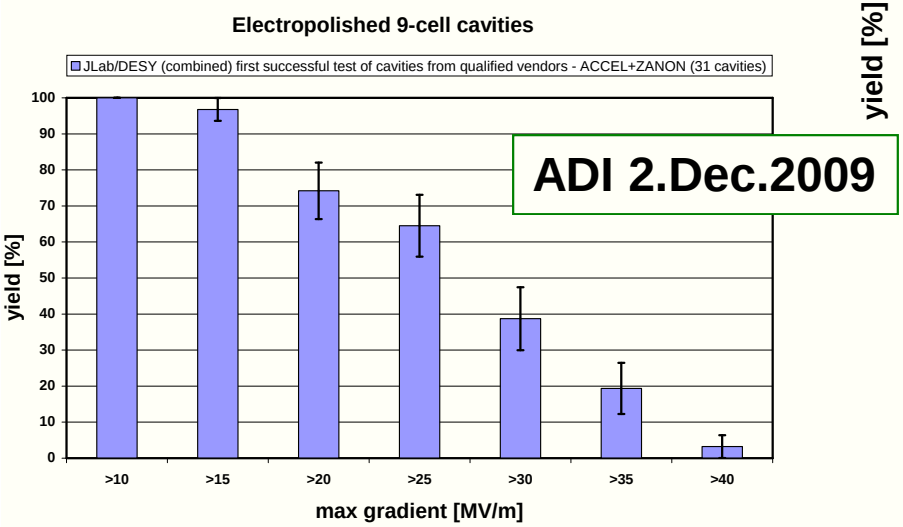
removed
added
changed

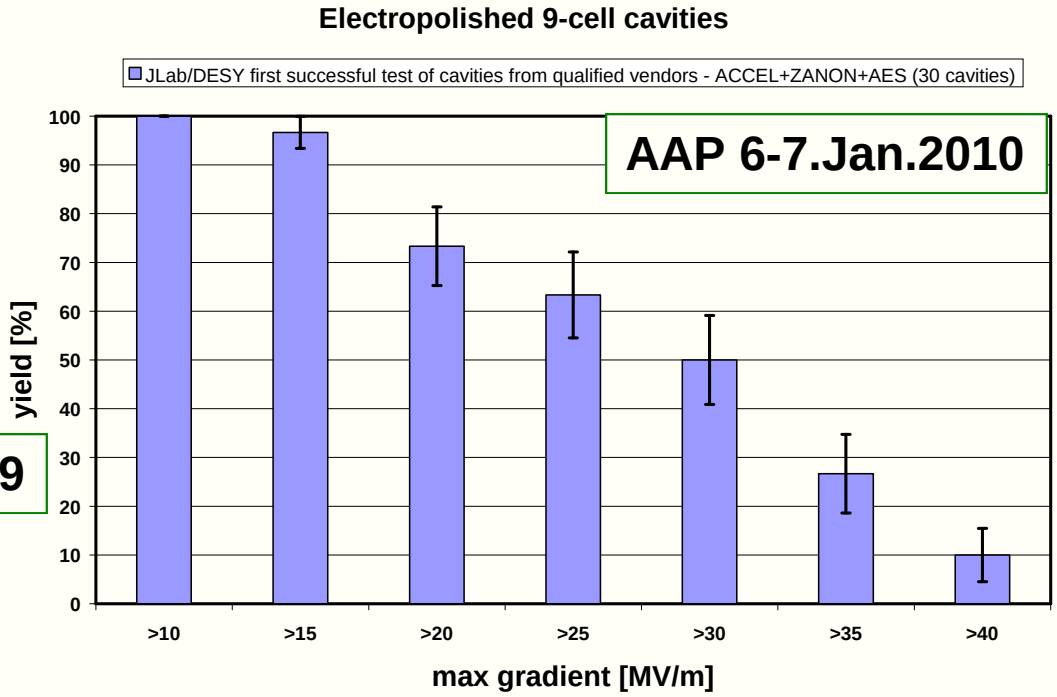
AAP 6-7.Jan.2010

“Qualified-Vendor” Production Yield Plot (First Pass)

Fermilab







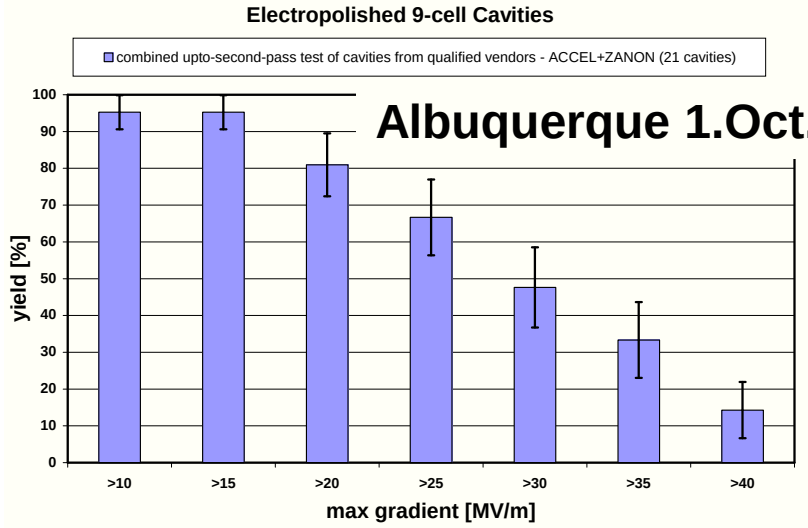
"Up-to-second-pass" Production Yield Plot (qual. vendor) - Method

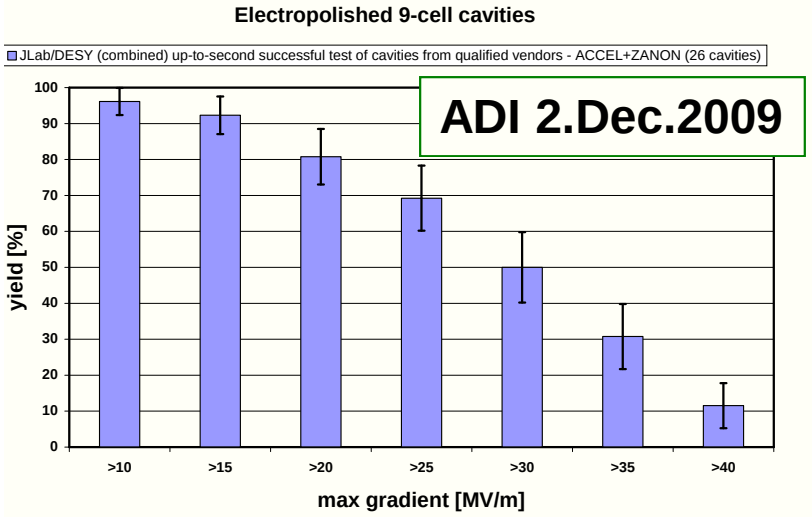
Fermilab

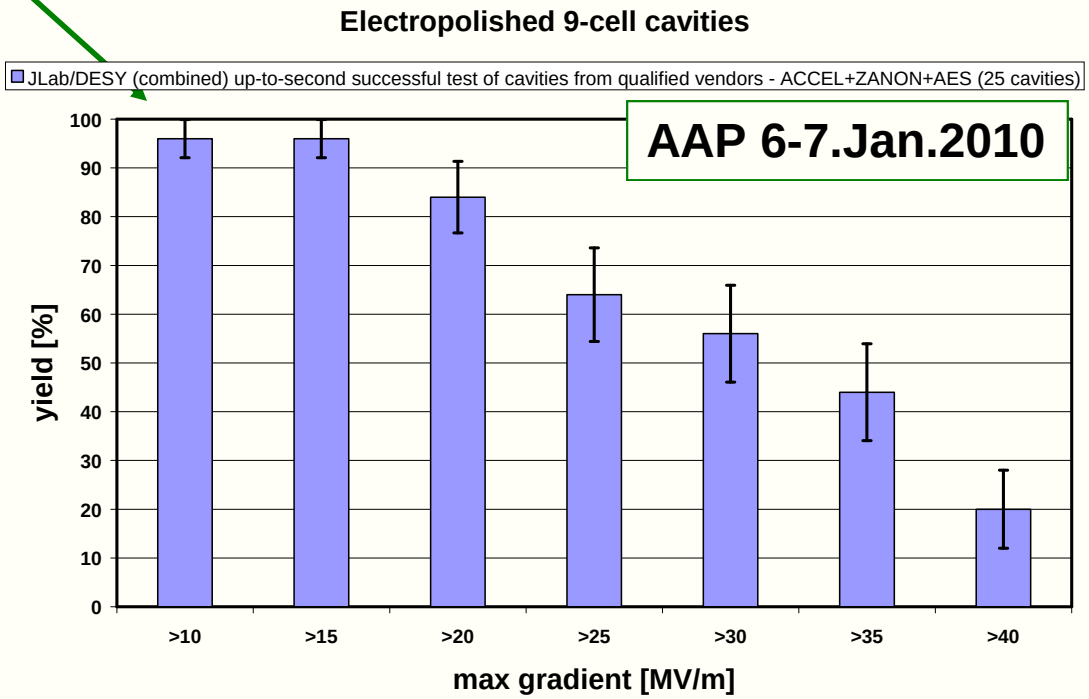
- **Database version 11.Dec.2009**
- **Cuts**
  - Cavity from qualified vendor: ACCEL or ZANON or (AES SN>=5)
  - Fine-grain cavity
  - Use the first successful (= no system problem) test
  - Standard EP processing: no BCP, no experimental processes
    - Defined as JLab#1, DESY#2 (weld tank before test), DESY #4 (weld tank after test)
  - (Ignore test limitation)
  - Second pass
    - if (Eacc(1st successful test)<35 MV/m) then
      - if (2nd successful test exists) then
        - » plot 2nd test gradient
      - else
        - » plot nothing [assume 2nd test didn't happen yet]
      - endif
    - else
      - plot 1st successful test gradient
    - endif
- **Include binomial errors**

Up-to-second-pass yield, qualified vendors

Fermilab







Compare 1st and 2nd pass yields, qualified vendors

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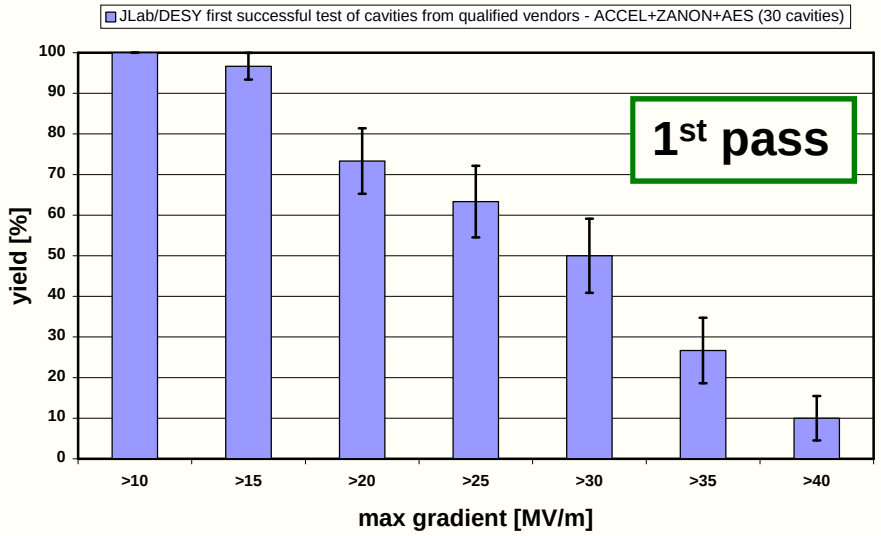
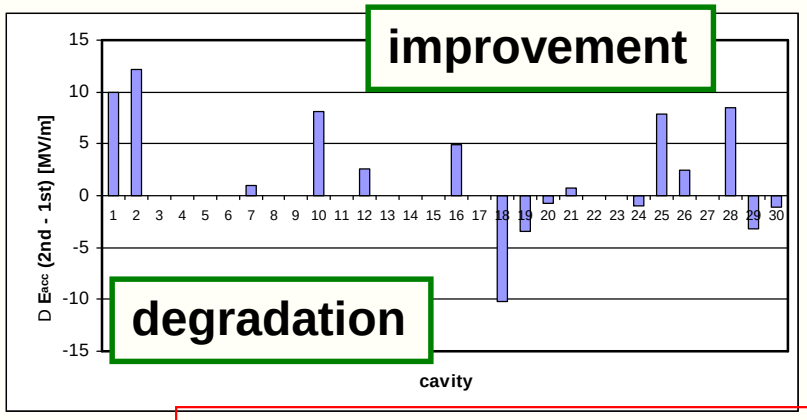
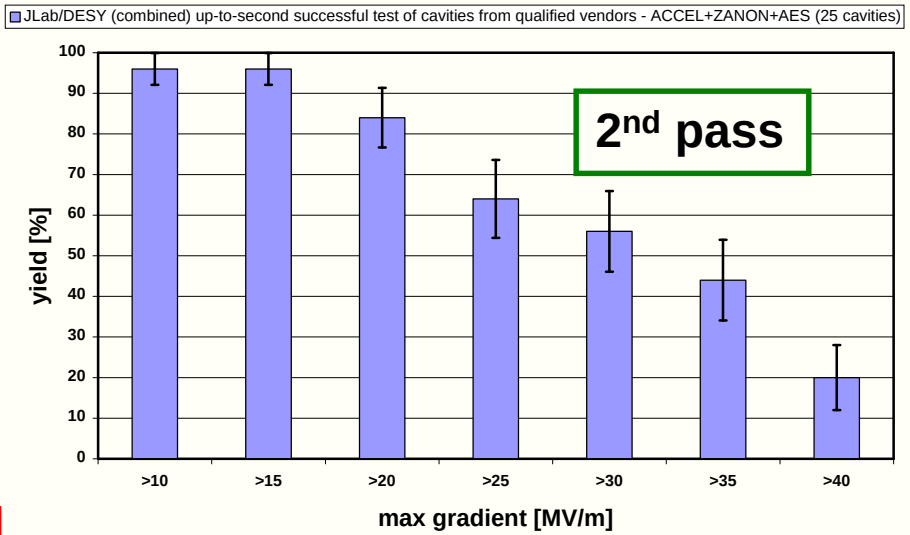
Electropolished 9-cell cavities





Electropolished 9-cell cavities



yield is improved after 2nd pass